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“The effects of stockperson education and training on farm animal welfare”

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Introduction

Farm animal welfare affected at:

1. Farm management level:

- human resource management practices (including employee selection and training) &
- animal management practices (such as best practice in housing and husbandry).

2. Stockperson level:

- stockpeople require a range of well developed husbandry skills and knowledge that they need to apply to effectively care for and manage farm animals.



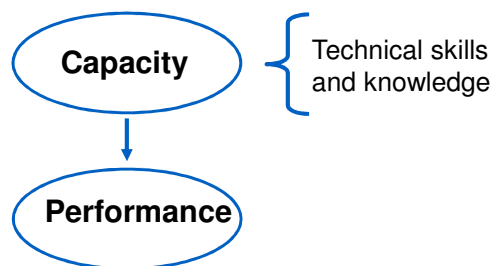
Introduction

There are three main types of stockperson characteristics that contribute to a stockperson's work performance:

1. capacity,
2. willingness, and
3. opportunity.



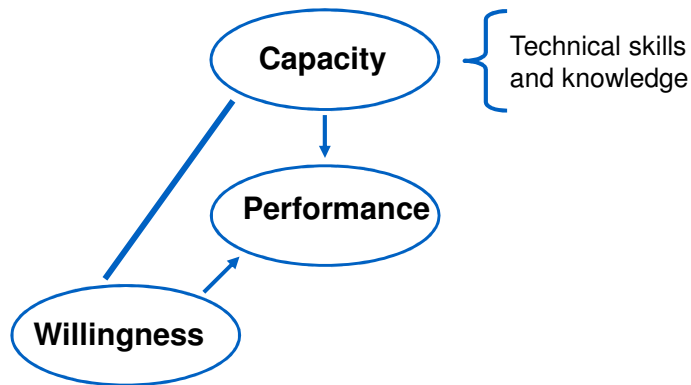
A model of stockperson work performance



Adapted from Blumberg and Pringle (1982)



A model of stockperson work performance

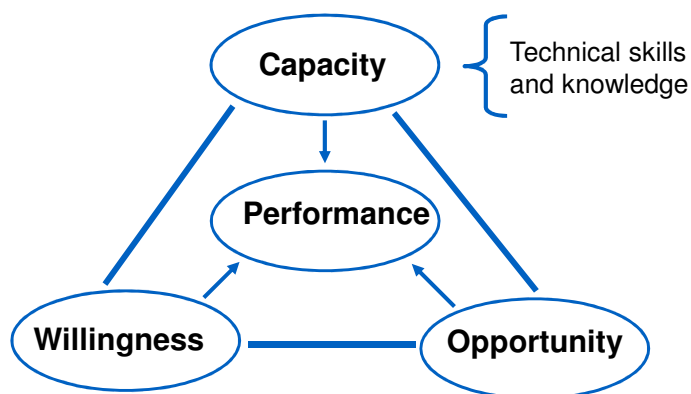


Attitudes, job motivation and commitment, job satisfaction, personality, job status and self-image

Adapted from Blumberg and Pringle (1982)



A model of stockperson work performance



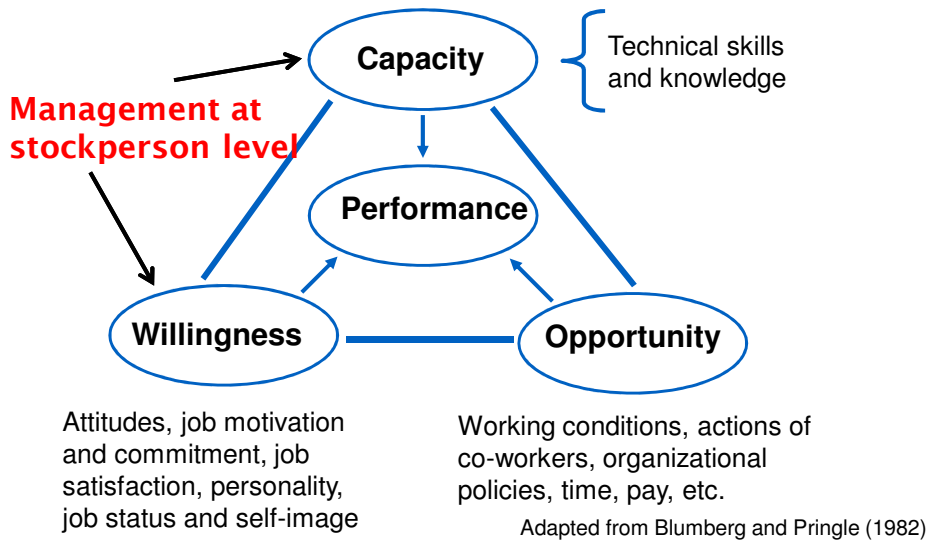
Attitudes, job motivation and commitment, job satisfaction, personality, job status and self-image

Working conditions, actions of co-workers, organizational policies, time, pay, etc.

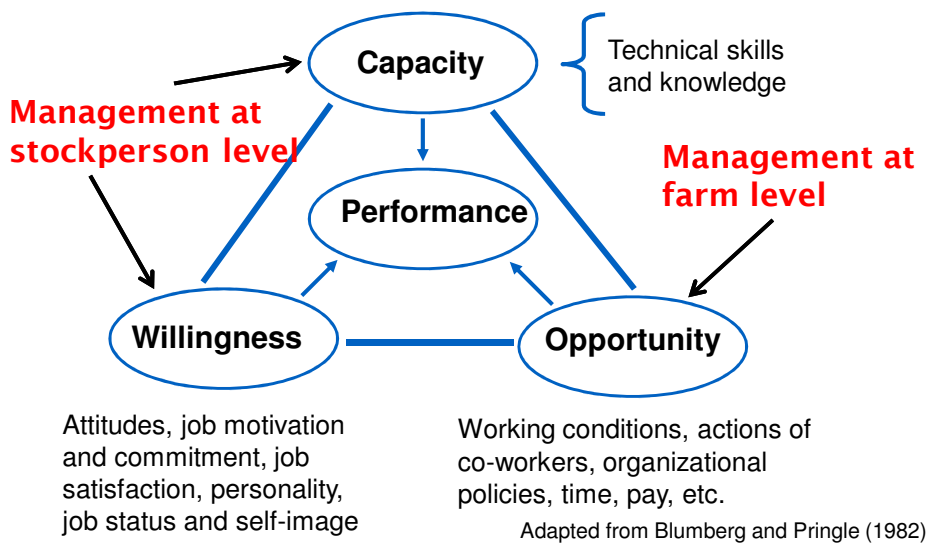
Adapted from Blumberg and Pringle (1982)



A model of stockperson work performance



A model of stockperson work performance





Outline of presentation

In order to consider stockperson training and its effects on animal welfare, I will briefly review:

1. Important characteristics of stockmanship
 - i. technical knowledge and skills,
 - ii. job motivation, commitment and satisfaction,
 - iii. attitudes and behaviour
2. Research on training targeting stockperson attitudes and behaviour.
3. Training opportunities to improve stockperson attitudes towards animals and working with animals and, in turn, improve other important job-related characteristics.



Technical knowledge and skills

- Knowing and being skilled at the techniques necessary to accomplish a task are clearly prerequisites to being able to perform that task.
- Thus these job-related characteristics will be limiting factors on job performance in situations where specific technical skills and knowledge that are required to perform the tasks are lacking.



Technical knowledge and skills

Stockpeople should have:

- a good general knowledge of the nutritional, climatic, social and health requirements of the animal,
- practical experience in the care and maintenance of the animal, and
- the ability to quickly identify any departures in the behaviour, health or performance of the animal from 'the norm' and promptly provide or seek appropriate support to address those departures.



Job motivation, commitment and satisfaction

Work motivation & commitment

- Refer to the extent to which a person applies his or her skills and knowledge to the management of the animals under his or her care (e.g. reliability, thoroughness, conscientiousness etc).

Job satisfaction

- Refers to the extent to which a person reacts favourably or unfavourably to his or her work.
- Will affect work motivation.

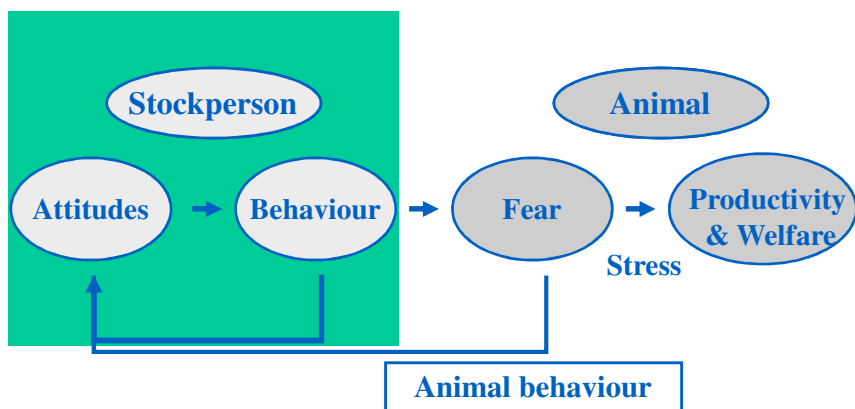
Low motivation will limit job performance regardless of technical skills and knowledge of the individual!



Attitudes and behaviour



A model of human-animal relationships (HAR) in the livestock industries



Hemsworth and Coleman (1998, 2011)



Evidence of this HAR in the livestock industries

- Handling studies
- Field observations
- Intervention studies in the field



Handling, fear and stress physiology in pigs

Experiment	- ve handling	P value
<i>Hemsworth et al. (1981)</i>		
Basal free cortisol	↑	0.05
<i>Gonyou et al. (1986)</i>		
Adrenal glands	↑	0.05
<i>Hemsworth et al. (1986)</i>		
Basal free cortisol	↑	0.05
<i>Hemsworth et al. (1987)</i>		
Basal free cortisol	↑	0.01
<i>Hemsworth & Barnett (1991)</i>		
Basal free cortisol	↑	NS
<i>Hemsworth et al. (1996)</i>		
Adrenal glands	↑	0.01



Handling, fear and productivity of pigs

Experiment	-ve handling	P value
<i>Hemsworth et al. (1981)</i>		
Growth rate	↓	0.05
<i>Gonyou et al. (1986)</i>		
Growth rate	↓	0.05
<i>Hemsworth et al. (1986)</i>		
Pregnancy rate	↓	0.05
<i>Hemsworth et al. (1987)</i>		
Growth rate	↓	0.05
<i>Hemsworth & Barnett (1991)</i>		
Growth rate	↓	NS
<i>Hemsworth et al. (1996)</i>		
Growth rate	↓	0.05



Correlations between stockperson attitudes and behaviour in field studies

Correlations coefficients (r)

Pig industry

Hemsworth et al (1989)	-0.61**
Hemsworth et al (1994c)	-0.55**
Coleman et al (1996)	-0.20

Dairy industry

Breuer et al (2000)	-0.50**
Hemsworth et al (2000)	-0.47**
Waiblinger et al. (2002)	-0.35

Correlations between +ve attitudes to 'petting' & -ve behaviour



Correlations between stockperson attitudes and behaviour in field studies

Correlations coefficients (r)

Pig industry

Hemsworth et al (1989)	-0.47*
Hemsworth et al (1994c)	-0.12
Coleman et al (1996)	-0.10

Dairy industry

Breuer et al (2000)	-0.50**
Hemsworth et al (2000)	-0.36*
Waiblinger et al. (2002)#	-0.50**

Correlations between +ve beliefs about 'effort' & -ve behaviour



Correlations between stockperson behaviour & animal fear in field studies

Correlations coefficients (r)

Pigs

Hemsworth et al (1989)	0.45*
Hemsworth et al (1994)	0.01
Coleman et al (2000)	0.40*

Dairy cows

Breuer et al (2000)	0.31
Hemsworth et al (2000)	0.32**
Waiblinger et al (2002)	0.40**

Meat chickens

Cransberg (1996)	0.43*
Hemsworth et al (1996)	0.32

Correlations between -ve behaviour and fear



Correlations between fear of humans and animal productivity

Correlations coefficients (r)

Pigs

Hemsworth <i>et al</i> (1981b)	-0.51*
Hemsworth <i>et al</i> (1989)	-0.55*
Hemsworth <i>et al</i> (1994c)	-0.01

Dairy cows

Breuer <i>et al</i> (2000)	-0.46*
Hemsworth <i>et al</i> (2000)	-0.27

Meat chickens

Hemsworth <i>et al</i> (1994a)	-0.57**
Cransberg (1996)	-0.10
Hemsworth <i>et al</i> (1996)	-0.39

Laying hens

Barnett <i>et al</i> (1992)	-0.58**
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Correlations between fear & productivity



Opportunities to improve the HAR

- Targeting key stockperson characteristics through training.

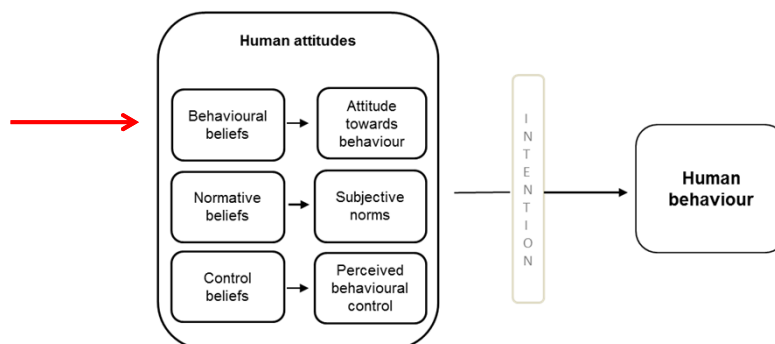


Attitudes

- **Attitudes tend to direct our behaviour or, at least, our intended behaviour.**
- Although attitudes are relatively stable and resistant to change, **nevertheless they are learned and can be modified.**
- Attitudes are **shaped by the reinforcements associated with direct and indirect experience.**



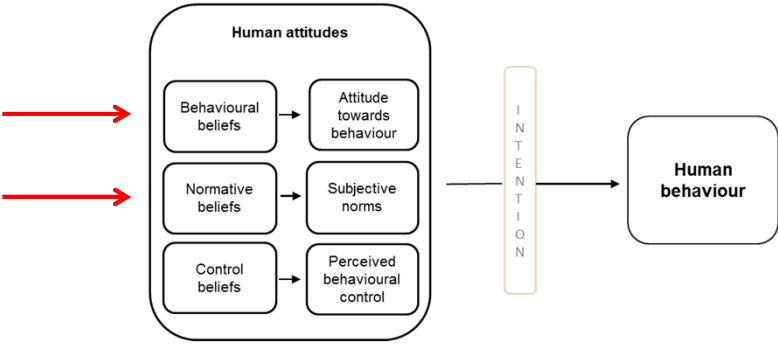
Measuring attitudes



Models of reasoned action and planned behaviour



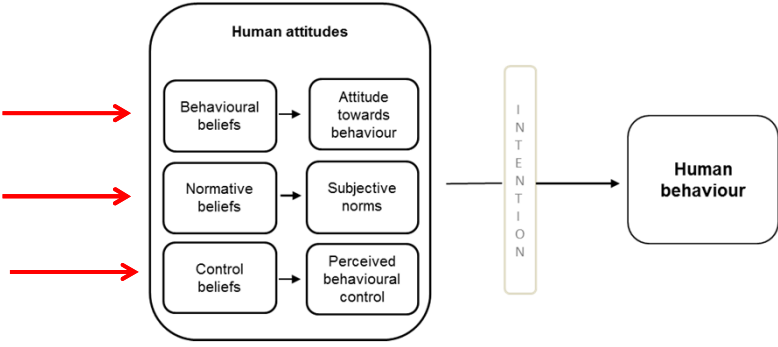
Measuring attitudes



Models of reasoned action and planned behaviour



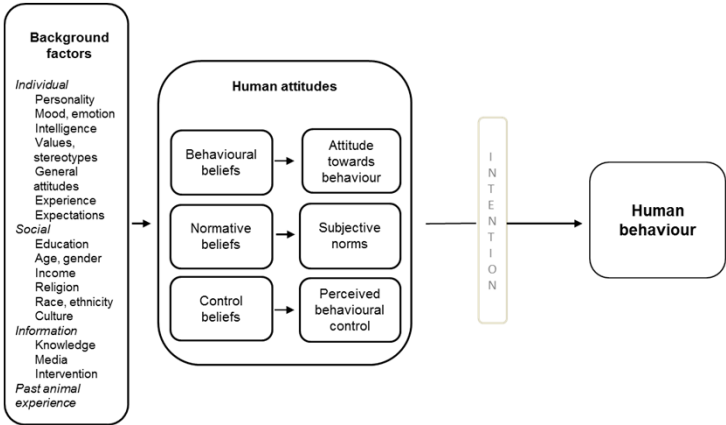
Measuring attitudes



Models of reasoned action and planned behaviour



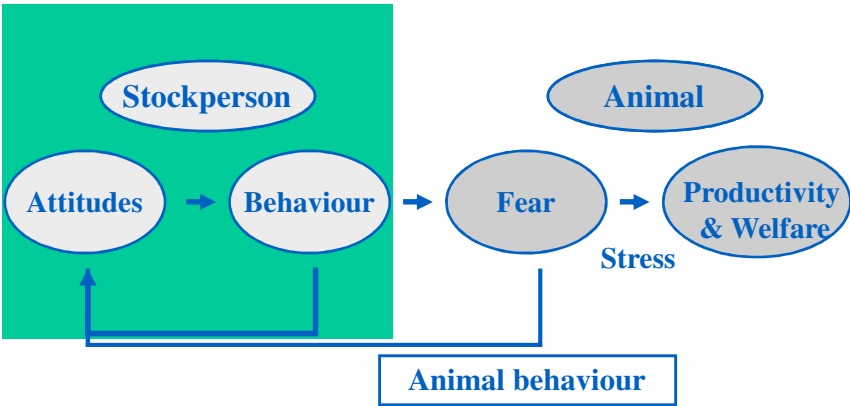
Measuring attitudes



Models of reasoned action and planned behaviour



A model of HAR in the livestock industries



Hemsworth and Coleman (1998, 2011)



Targeting stockperson behaviour

- The best way to predict how stockpeople will interact with their animals is by **knowing what their attitude** is toward the activity itself.
- The idea that attitudes best predict how stockpeople behave towards their animals has been applied in our previous research and the subsequent training programs that have been developed.



Cognitive-behavioural interventions

- To change the behaviour of stockpeople towards farm animals ultimately requires:
 - targeting the **beliefs** that underlie the behaviour,
 - targeting the **behaviour** in question, and
 - then maintaining these changed beliefs and behaviours.
- It is important to target both attitudes and behaviour because of the reciprocal relationship between these two characteristics.



Intervention studies in the field

- Two treatments imposed:
 - **Intervention**, cognitive-behavioural intervention procedure, targeting key stockperson attitudes and behaviour, and
 - **Control**, no intervention was attempted.



Measurements

- **Stockperson attitudes**
- **Stockperson behaviours**
- **Fear of humans**
- **Animal productivity**



The effects of cognitive-behavioural training on stockperson and sow variables (n=25 farms)

Variables	Change following Training (relative to Control)	P value
Stockperson attitudes		
+ve Beliefs about 'petting'	15% ↑	0.05
Stockperson behaviour		
-ve (%)	31% ↓	0.01
Sow behaviour		
Time near experimenter (s)	40% ↑	0.05
Sow productivity		
Piglets/sow/year	7% ↑	0.10

From Hemsworth et al. (1994)



The effects of cognitive-behavioural training on stockperson and cow variables (n=29 farms)

Variables	Change following Training (relative to Control)	P value
Stockperson attitudes		
+ve Beliefs about 'effort'	16% ↑	0.01
Stockperson behaviour		
-ve (%)	50% ↓	0.001
Cow behaviour		
Flight distance (m)	7% ↓	0.05
Cow physiology		
Milk cortisol (nM/L)	32% ↓	0.06

From Hemsworth et al. (2002)



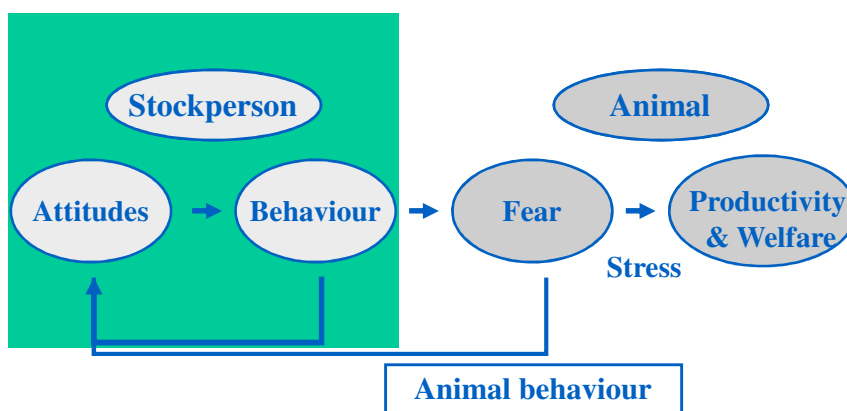
The effects of cognitive-behavioural training on cow productivity variables (n=94 farms)

Variables	Change following Training (relative to Control)	P value
Milk yield (L/cow/month)	5% ↑	0.02

From Hemsworth et al. (2002)



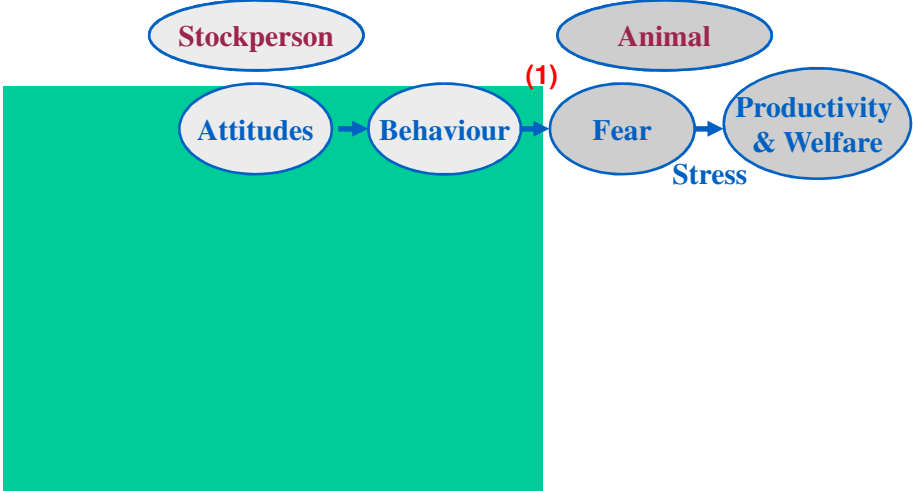
A model of human-animal interactions in the livestock industries



Hemsworth and Coleman (1998, 2011)



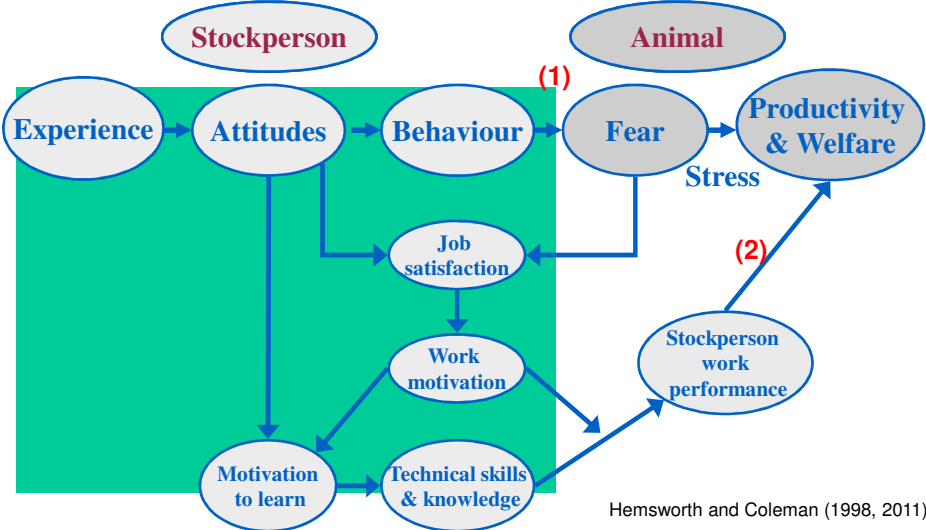
A model of human-animal interactions in the livestock industries



Hemsworth and Coleman (1998, 2011)



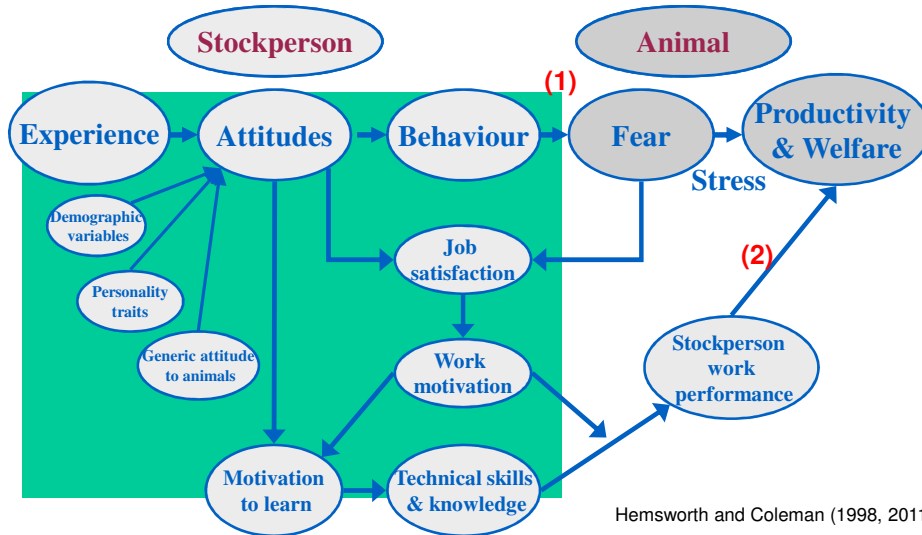
A model of human-animal interactions in the livestock industries



Hemsworth and Coleman (1998, 2011)



A model of human-animal interactions in the livestock industries



Hemsworth and Coleman (1998, 2011)



Impact of attitudes

Thus,

- Stockperson attitudes affect the stockperson behaviour towards interacting with pigs and consequently pig fear, productivity and welfare.

Furthermore:

- Stockperson attitudes may be related to aspects of work apart from handling of animals.
- That is, stockperson attitudes towards animals and working with animals may influence other important job-related characteristics, such as job satisfaction, work motivation and motivation to learn.



Conclusion

Both **technical and behavioural training** of stockpeople are necessary

- to not only reduce the stress associated with handling and husbandry procedures,
- but also to improve the **motivation** in stockpeople
 - to **learn** new technical skills and knowledge and
 - to **apply these competencies to the management** of the animals under their care.



Cognitive-behavioural training programs available

- **Pig stockpeople***
- Dairy stockpeople
- Pig stockpeople at abattoirs
 - Sheep and cattle stockpeople at abattoirs
 - Transport drivers
- EU 6th Framework Sub-project 3 “Minimising Handling Stress”: Training packages developed for cattle, pigs & laying hens.



Conclusion

- To target 'stockmanship' both **technical and behavioural training** of stockpeople are necessary!



Thank you!



Targeting 'stockmanship'?

➤ **Stockperson training**

- Cognitive-behavioural techniques as discussed.
- Technical knowledge and skills training.

➤ **Stockperson selection**

- Evidence that some job-related characteristics (e.g. work motivation, attitudes to animals and empathy) are related to intention to remain in the job and subsequent work performance.
- Such tests have the potential to assist in screening potential stockpeople both to aid selection and, perhaps more importantly, to identify areas where targeted both induction and on-going training is indicated.